UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

Allegheny Forest Experiment Station
Philadelphia, Pennsylvania

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Technical Note No. 4

ANIMAL DAMAGE IN RELATION TO SIZE OF PLANTING STOCK

An interplanting of five coniferous species was established during March and April 1930 among seven-year-old sprout hardwood clumps at the Camp Ockanickon Experimental Forest, Burlington County, New Jersey. The species used were Pinus strobus, L., P. rigida Mill., P. echinata Mill., P. resinosa Sol., and P. banksiana Lam.

Examinations of the plantations were made in April 1930, directly after planting was completed, in November of the same year, and in November of the following year. One unmistakable type of injury recognized was that caused by animals. The extent of this damage by height classes for each period and for all species combined, has been shown in table 1. It will be noted that animal injury decreased as the size of the planting stock increased. This is contrary to the evidence presented by the Lake States Forest Experiment Station ("Size of stock in relation to animal injury". Forest Research Digest, February, 1935.) and by Perry ("Open field planting", George S. Perry, Service Letter, The Pennsylvania Department of Forests and Waters, December 6, 1934.)

It will also be noted that animal damage during the first growing season was slight, being only 8.1 percent in April and 9.7 percent in November. However, the examination made in the following November after the passage of one winter, revealed a 20.7 percent increase in injury of this nature. The trees were exposed throughout the winter excepting a few days following a five-inch snowfall in December. To arrive at the percentages shown in table 1, all trees which died from causes other than animals were excluded, it being assumed that such trees were not susceptible or were unavailable to damage of this nature.

Although deer have been seen on the area it is believed that most of the damage done by animals may be attributed to rabbits. This belief is strengthened by the fact that a portion of the area completely enclosed by a one-inch mesh wire fence, two feet high, was entirely free from damage of this nature. Obviously such a fence would not exclude mice or deer but would protect the enclosed trees from rabbits.

As a possible explanation as to why the smaller planting stock is more susceptible to rabbit damage it is suggested that rabbits being accustomed to feeding close to the ground attack the smaller trees which are more easily reached.

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Table 1

Animal damage by height classes, all species

Height class	April 1930			November 1930			November 1931			Total		
	Trees surviving other injuries			Trees surviving other injuries			Trees surviving other injuries			Trees surviving other injuries		
	Total	Animal damage		Total	Animal damage		Total	Animal damage		Total	Animal damage	
Feet	No.	No.	Percent	No.	No.	Percent	No.	No.	Percent	No.	No.	Percent
* X	208	146	70.2	95			73	8	11.0	186	154	82.8
0.1	518	68	13.1	368	7	1.9	290	65	22.4	335	140	41.8
.2	674	12	1.8	523	8	1.5	440	167	38.0	450	187	41.6
.3	571	2	0.4	483	10	2.1	433	99	22.9	441	111	26.2
.4	373			327	6	1.8	296	34	11.5	298	40	13.4
.5	262	1	0.4	221	5	2.3	210	12	5.7	212	18	8.5
.6	129			112			110	9	8.2	110	9	8.2
.7	57			52			50	2	4.0	50	2	4.0
.8	20			17			15			15		
Total	2812	229	8.1	2198	36	1.6	1917	396	20.7	2097	661	31.5

* "X" height class includes those trees which lost all or part of their top prior to the first examination.

The number of trees in the height classes above 0.8 inches is so small as to rob the data on injury of any real value, hence has been omitted.